



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ  
Α . Δ Ι . Π .  
ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ  
ΠΙΣΤΟΠΟΙΗΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ  
ΣΤΗΝ ΑΝΩΤΑΤΗ ΕΚΠΑΙΔΕΥΣΗ

HELLENIC REPUBLIC  
H . Q . A .  
HELLENIC QUALITY ASSURANCE  
AND ACCREDITATION AGENCY

## **EXTERNAL EVALUATION REPORT**

Technical University of Crete (TUC)

## TABLE OF CONTENTS

<b>1.</b>	<b>EXTERNAL EVALUATION COMMITTEE .....</b>	<b>4</b>
<b>2.</b>	<b>INTRODUCTION .....</b>	<b>6</b>
	• 2.1 The External Evaluation Procedure .....	6
	• 2.2 The Self-Evaluation Procedure .....	11
<b>3.</b>	<b>PROFILE OF THE INSTITUTION UNDER EVALUATION.....</b>	<b>12</b>
	• 3.1 Institutional Governance, Leadership & Strategy .....	12
	3.1.1 Vision, mission and goals of the Institution .....	12
	3.1.2 Organizational Development Strategy.....	14
	3.1.3 Academic Development Strategy .....	15
	3.1.4 Research Strategy .....	16
	3.1.5 Financial Strategy .....	18
	3.1.6 Real Estate Development Strategy.....	19
	3.1.7 Environmental Strategy.....	20
	3.1.8 Social Strategy.....	22
	3.1.9 Internationalization Strategy .....	23
	3.1.10 Student Welfare Strategy.....	24
	• 3.2 Strategy for Study Programmes .....	25
	• 3.3 Profile of the Institution under evaluation – Conclusions and recommendations .....	31
<b>4.</b>	<b>INTERNAL SYSTEM OF QUALITY ASSURANCE.....</b>	<b>33</b>
	• 4.1 Quality Assurance (QA) Policy and Strategy .....	33
	• 4.2 Design, approval, monitoring and evaluation of the study programmes and degrees awarded.....	34
	• 4.3 Teaching and learning - Assessment by students .....	35
	• 4.4 Admission of students, progression and recognition of studies .....	36
	• 4.5 Quality Assurance as regards the teaching staff.....	37
	• 4.6 Learning resources and student support.....	38
	• 4.7 Information Systems for Recording and Analysing Data and Indicators.....	39
	• 4.8 Dissemination of information to stakeholders .....	41
	• 4.9 Continuous monitoring and periodic review of the study programmes.....	42
	• 4.10 Periodic external evaluation .....	43
	• 4.11 Internal System of Quality Assurance – Conclusions and recommendations .....	44
<b>5.</b>	<b>OPERATION OF THE CENTRAL ADMINISTRATION OF THE INSTITUTION .....</b>	<b>45</b>
	• 5.1 Central Administration Services of the Institution .....	45
	• 5.2 Operation of the Central Administration of the Institution – Conclusions and recommendations .....	46

<b>6.</b>	<b>GENERAL RECOMMENDATIONS.....</b>	<b>47</b>
•	6.1 Final decision of the EEC.....	48
	<b>The Members of the External Evaluation Committee .....</b>	<b>49</b>

## **1. EXTERNAL EVALUATION COMMITTEE**

The Committee responsible for the External Evaluation of the University/Technological Education Institution named: **Technical University of Crete** comprised the following five (5) expert evaluators drawn from the Registry kept by the HQA in accordance with Law 3374/2005 and the Law 4009/2011:

1. Prof. Constantine Memos, ( Chairman)  
ex Member of HQA Council,  
Professor Emeritus, National Technical University of Athens, Greece
2. Prof. Stella Batalama,  
University at Buffalo, The State University of New York, Buffalo, U.S.A.
3. Prof. Michel Dimou,  
Université de Toulon, Toulon, France
4. Prof. George Vellidis,  
University of Georgia, Athens, Georgia, U.S.A.
5. Dr. Paraskevas Dalianis,  
Expert – Member of Greek Association of Computer Scientists, Greece



## 2. INTRODUCTION

### 2.1 The External Evaluation Procedure

The External Evaluation Procedure was conducted smoothly. Meetings or documents asked for by the EEC in addition to the initial schedule were promptly arranged for or provided by TUC to the committee's complete satisfaction. The actual work plan with information on dates, meetings implemented, their agenda, participants, etc. is provided below.

Date	Event & Participants	Agenda / Details
18/10/2015, 20:00-21:30	EEC internal meeting at Hotel	Kydon Hotel First EEC Meeting, discussion of the self-evaluation; inventory of issues for the site visit, work allocation
<b>First day of visit (19/10/2015)</b>		
19/10/2015, 9:00 - 10:00	Orientation meeting EEC & representative member of the HQA	Briefing of HQA mission, standards and guidelines of QA institutional evaluation, national framework of HEIs in Greece
19/10/2015, 10:00 - 10:15	Meeting with the Rector EEC & Rector Prof. V. Digalakis	Welcome, make acquaintance
19/10/2015, 10:15 - 12:00	Meeting with the Rector and the Deputy Rectors EEC, Rector Prof. V. Digalakis & Deputy Rectors, Profs N. Nikolaidis, G. Stavroulakis, E. Psillakis	Key issues for evaluation from the institution's perspective (arising from self-evaluation and from rector's and vice rector's experience)
19/10/2015, 12:00 - 13:00	Meeting with self-evaluation team EEC, Deputy-Rector/President of QAU Prof. G. Stavroulakis & self-evaluation steering group (QAU)	The institution's structures, quality management and strategic management; national higher education and research policies; student issues. Understand self-evaluation process and extent of institutional involvement; how useful was the self-evaluation for the institution (emerging issues, function in strategic planning processes)? Are self-evaluation data still up to date?
19/10/2015, 13:00 - 14:00	Lunch break EEC only	Reflect upon impressions of first meetings and complete information as necessary
19/10/2015, 14:00 - 15:00	Tour of the campus Accompanying persons: Rector, Deputy Rectors, Mr. Sp. Psychis, General Director of TUC	To get to know the campus and paying special attention to student facilities

Date	Event & Participants	Agenda / Details
19/10/2015, 15:00 - 16:00	Meeting with the TUC Institution Council  EEC , President of the Institution Council (Board of Trustees), Prof. D. Tschritzis, and Council members	Relationship of Council with rectoral team regarding strategic and quality management
<b>Parallel sessions</b>		
19/10/2015, 16:15 - 17:00 parallel session	Visit to Production Engineering and Management School by a subset of the EEC Dean Prof. N. Tsourveloudis, Vice-Dean Assoc. Prof. V. Grigoroudis  Visit to Environmental Engineering School Visit to faculties (part A) EEC, Dean Prof. G. Karatzas, Vice Dean Prof. MLazaridis	Introduction to the faculty: structures, quality management and strategic management; discuss relationships of faculties with the central level; input in self-evaluation; role of quality control activities in faculty
19/10/2015, 17:15 - 18:00 parallel session	EEC and Internal Evaluation Groups (IEGs)	The faculty's structures, quality management and strategic management; national higher education and research policies; student issues. Understand self-evaluation process; how useful was the self-evaluation for the departments and the faculty (emerging issues, function in strategic planning processes)?
19/10/2015, 18:15 - 19:00 parallel session	EEC and academic staff representatives	Discuss relationships of faculties with the central level; input in self-evaluation; role of quality control activities in faculty; recruitment of new staff; staff development; motivation policies.
19/10/2015, 19:30 - 20:00	Debriefing meeting EEC only	
<i>End of parallel sessions</i>		
<b>Second day of visit (20/10/2015)</b>		
<i>Parallel sessions</i>		
20/10/2015, 09:00 - 10:30 parallel session	Visit to Electronic and Computer Engineering School by a subset of the EEC Dean Prof. A. Dollas, Vice-Dean Prof. M. Zervakis  Visit to Mineral Resources Engineering School by a subset of the EEC EEC , Dean Prof. E. Manoutsoglou, Vice-Dean Prof. A. Vafidis	Introduction to the faculty: structures, quality management and strategic management; discuss relationships of faculties with the central level; input in self-evaluation; role of quality control activities in faculty
20/10/2015, 10:30 - 11:30 parallel	EEC and Internal Evaluation Groups (IEGs) representatives	EEC and Internal Evaluation Groups (IEGs) representatives

Date	Event & Participants	Agenda / Details
session		
20/10/2015, 11:30 - 12:45 parallel session	EEC and academic staff representatives	Relationships of faculties with the central level; input in self-evaluation; role of quality control activities in faculty; recruitment of new staff; staff development; motivation policies.
<i>End of parallel sessions</i>		
20/10/2015, 13:00 - 14:05	Meeting with the chief administration officers EEC and chief administration officers	Role of institutional strategic documents (development plans, etc.) in development of institution; special issues arising from self-evaluation report and/or talks with Rector
20/10/2015, 14:10 - 14:30	Lunch break EEC only	Reflect upon impressions of meetings and complete information as necessary
20/10/2015, 14:30-15:30	Meetings with graduate students	Graduates' experience of the institution.
<i>Parallel sessions</i>		
20/10/2015, 15:30 - 1630 parallel	visit to Architectural Engineering School Visit to faculties (part C) EEC , Dean Prof. C. Providakis by a subset of the EEC	Introduction to the faculty: structures, quality management and strategic management; discuss relationships of faculties with the central level; input in self-evaluation; role of quality control activities in faculty
20/10/2015, 16:30 - 17:45 parallel	Visit to faculties (part C) EEC and Internal Evaluation Groups (IEGs)	The faculty's structures, quality management and strategic management; national higher education and research policies; student issues. Understand self-evaluation process; how useful was the self-evaluation for the departments and the faculty (emerging issues, function in strategic planning processes)?
20/10/2015, 17:45 - 18:00 parallel	Visit to faculties (part A) EEC and academic staff representatives	Relationships of faculties with the central level; input in self-evaluation; role of quality control activities in faculty; recruitment of new staff; staff development; motivation policies.
20/10/2015, 15:15 – 16:00	Visit to infrastructure and facilities, TUC campus by a subset of the EEC University Library and Information Center	



<b>Date</b>	<b>Event &amp; Participants</b>	<b>Agenda / Details</b>
20/10/2015, 16:15 – 17:00	Telecommunications, Networking and Computing Infrastructures Center	
20/10/2015, 17:15 – 18:00	Language Research and Resources Center	
<i>End of parallel sessions</i>		
20/10/2015, 18:15-19:00	Meeting with alumni (graduates) of the Technical University	Experience of graduates from their studies and support from TUC
20/10/2015, 19:15-20:00	Meeting with external partners including industry, society and/or local authority representatives	Relations of the institution with external partners of the private and public sectors
20/10/2015, 20:00	Transfer of EEC members to the hotel	
<b>Third day of visit (21/10/2015)</b>		
21/10/2015, 09:00-11:00	Debriefing meeting EEC only	Exchange impressions, review and drafting the oral report
21/10/2015, 11:15 – 13:00	EEC only	Working on the draft of the External Evaluation Report (EER)
21/10/2015, 13:00 - 14:30	Lunch Break	
21/10/2015, 14:30 - 20:15	EEC only	Working on the draft of the External Evaluation Report (EER)
<b>Fourth day of visit (22/10/2015)</b>		
22/10/2015, 08:45 - 11:00	EEC only	Working on the draft report
22/10/2015, 11:00 - 12:00	Rector, CEO of University Property Development & Management Company	Discussion on TUC Property and its potential
22/10/2015, 12:00 - 13:00	EEC only	Working on the draft report
22/10/2015, 14:00 - 14:30	Lunch Break	
22/10/2015, 14:30 - 18:00	EEC only	Working on the draft report

<b>Date</b>	<b>Event &amp; Participants</b>	<b>Agenda / Details</b>
22/10/2015, 18:00 - 20:15	Presentation of oral report to TUC President of Institution Council, Rector, Deputy Rectors, liaison person, self- evaluation group, Deans of Schools	
<b>Fifthday of visit (23/10/2015)</b>		
23/10/2015, 09:00 - 14:00	EEC only	Working on the draft report
23/10/2015, 14:10 - 14:30	Lunch Break	
23/10/2015, 14:30 - 20:15	EEC only	Working on the draft report
<b>Sixth day of visit (24/10/2015)</b>		
24/10/2015, 09:00 - 17:00	EEC only	Finalization of draft report for submission to the HQA
24/10/2015, 18:00	Departure of last EEC Members from Chania	

*Please decide in respect to the specific evaluation area (§2.1):*

	Tick
<b>Worthy of merit</b>	√
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

Although formal meetings with undergraduate students were not possible, EEC interviewed a limited, but sufficient for the purposes of this evaluation, number of post graduate and Ph.D. students.

## 2.2 The Self-Evaluation Procedure

The self-evaluation procedure provided documentation that was appropriate for the external evaluation. The objectives of the evaluation were, in general, met by the Institution. The EEC was not in a position to check in detail all the above documentation. Minor inconsistencies in quantitative information or qualitative assessments did not deviate EEC from gaining a truthful view of TUC's current status.

The sections of the Self-Evaluation Report contributed by the Schools were inconsistent in terms of content and quality of information. Some were comprehensive while others were very brief. In general, they lacked metrics with which to quantify research output and most of those data were available only at the institutional level.

<i>Please decide in respect to the specific evaluation area (§2.2):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

### **3. PROFILE OF THE INSTITUTION UNDER EVALUATION**

#### **3.1 Institutional Governance, Leadership & Strategy**

*Please comment on:*

##### **3.1.1 Vision, mission and goals of the Institution**

- What are the Institution's mission and goals
 

The mission statement and goals of TUC as written in the Internal Evaluation Report are overly broad and difficult to address realistically. The mission statement has 6 components followed by 7 broad goals. The EEC suggests that TUC reassess its published mission statement and goals so that they are more specific, achievable, and can be used to assess the performance of TUC in future evaluations. Such a framework will form the foundation of the QA internal system and should be conveyed to the Schools which should align their individual mission statements and goals with those of the Institution.

In section §B.3.2 of the Internal Evaluation Report, it is stated that the priority of TUC is to benefit society through excellence in teaching and research. This was reaffirmed by the Rector, Dr. Digalakis, during his introductory presentation to EEC. For the remainder of this report, it is assumed that the goal of TUC is to achieve excellence in teaching and research and our findings will be addressed in this context. Dr. Digalakis and Deputy Rectors Drs. Psilaki and Nikolaidis presented the priorities of the Institution as set by these goals.
- Priorities set by goals
 

To pursue excellence in teaching, the priorities are to regularly review and revise the undergraduate programmes of study in order to meet current and future market and societal needs and to create relevant multi-institutional post-graduate degree programmes including some taught in English which will attract foreign students and thus internationalize the student body. A few of such programmes have been recently implemented at the MSc and Ph.D. level. To pursue excellence in research, the priorities are to double research activity over the next 3 years by increasing extramural funding for research, creating Clusters of Excellence, and establishing partnerships with national and international institutions.
- How are the goals achieved
 

The goals are achieved by actively pursuing the priorities described under the previous bullet item. More information is provided in subsequent sections.
- Procedures established by the Institution to monitor the achievement of goals
 

TUC has established procedures to monitor achievement of individual goals. For example, the Special Account for Research Funds (SARF) office can continually assess the number of proposals submitted and grants awarded. Likewise, student evaluations of courses are used to assess quality of teaching. There is no institution-wide written procedural manual which documents and describes well-defined procedures and metrics which should be used to evaluate progress made towards achieving goals. The EEC believes that such a document is needed for the institution to set benchmarks and successfully assess progress.
- What is your assessment of the Institution's ability to improve
 

TUC is populated by highly skilled and highly motivated faculty, staff, and postgraduate, and Ph.D. students who have the potential, will, and ability to excel. In fact, TUC overall and many of its individual faculty members are held in high esteem by its peer institutions. Under normal circumstances, one would expect that TUC would be on a steeply rising trajectory and assume a position of high prominence at both the national and international scale. At the time of this evaluation, however, circumstances were not normal. TUC is confronted with major budget cuts, their student numbers have doubled, and there is an accelerating loss of faculty.

These conditions have the potential of severely affecting the quality of teaching and research programmes. On the other hand, the economic crisis has resulted in an annual increase of greater than 8% in extramural funding which indicates that decreasing state funding has perhaps reduced complacency and spurred faculty to pursue extramural funding more actively. The economic crisis has also spurred TUC to find new and innovative ways to stretch their limited budget which will be discussed later.

Size affects scalability and flexibility; TUC's relatively small size gives it the advantage of flexibility and the ability to more quickly respond to external forcing factors. In the long run however, scalability and flexibility are compromised by decreasing numbers. Unless the national government commits to, at the very minimum, maintain faculty and staff at current numbers, the quality of the teaching and research programmes at the TUC are in peril and the institution's ability to improve is limited.

The size of the Institution is small compared to other technical universities in developed countries. Size always affects level of flexibility and scale. Clearly, the small size of TUC makes this Institution flexible. With respect to scale, the size of TUC may restrict interactions across a wider range of disciplines that may be required in attaining research and teaching excellence. Given that considerable expansion of TUC does not appear feasible in the near future the EEC strongly suggests fostering existing or forging new synergies with academic and research bodies of complementary specialization, particularly the ones based locally. Subjects to be considered by the Institution to form the basis for further development of synergies could include those of direct relevance to regional (Cretan) economy. Our recommendation is that the size issue be addressed through a competent Rector's task committee. In the same context, an effort toward closer collaboration between TUC Schools should also be undertaken.

In addition to all of the financial obstacles, TUC is also faced with constantly changing national laws governing the operation of the university, irregular implementation and suspension of rules by the Ministry of Education, as well as lack of responsiveness by the Ministry to submitted documents and initiatives. For example, TUC submitted the required by law organizational structure and operating procedures to the Ministry of Education approximately 18 months ago and as yet no action has been taken by the Ministry creating a climate of uncertainty at TUC. In this climate, it is difficult to implement creative and innovative initiatives which may lead to measurable improvements in quality.

The EEC was impressed with how well the Institution was functioning under these very adverse conditions. The TUC's administrative team, faculty, and staff should be applauded for these efforts.

<i>Please decide in respect to the specific evaluation area (§3.1.1):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

The TUC's administrative team (Rector and Deputy Rectors) have a clear vision and associated goals of where they want to lead the Institution. They articulate their vision and goals clearly and passionately and are expending great effort to achieve these goals. However, the Institution's official mission statement and goals are too broad and too numerous and must be refocused. The Schools must align their mission and goals with those of the Institution. Simplified and unified official mission statements and goals are needed at all levels of the Institution.

**NB**

*Two members of the EEC give a lower evaluation (partially positive) due to the fact that no document on strategic planning with feasible goals, milestones, and time-lines has been drafted, discussed, and made publicly available.*

### **3.1.2 Organizational Development Strategy**

- Effectiveness of administrative officials

The EEC met with the TUC administrative team (the Rector Dr. Vassilios Digalakis, and deputy rectors Drs. Nikolaos Nikolaidis, Elia Psillaki, and Georgios Stavroulakis) on several occasions. The administrative team provided EEC with information on the current condition of TUC as well as their strategy and goals for the future. Their strategy and goals for academic and research programmes were clearly explained and are ambitious but also achievable. Some clarification and consistency is needed in the administrative teams' use of the terms mission, strategy, goals, and objectives.

The administrative team is dynamic and committed to solving both short and long-term problems facing the Institution as well as planning for the future. The administrative team appears to have excellent working relationships with the support staff, the faculty, and the Schools.

- Existence of effective operation regulations

As reported earlier, the TUC submitted the required by law 4009/2011 organizational structure and operating procedures to the Ministry of Education approximately 18 months ago and were the first institution in Greece to do so. The organizational structure and operating procedures have as yet not been approved by the Ministry. As a result, the TUC operates using a blend of operating procedures some of which are prescribed by the 4009/2011 law and some of which are prescribed by the corresponding 1997 law. Under these confounding circumstances, the administrative team appears to be doing an excellent job of managing the Institution.

- Specific goals and timetables

The administrative team's strategic goals and timetable are described in section 3.1.1 Vision, mission and goals of the Institution.

A recent study by the Ministry of Education determined that the current level of faculty and students should be supported by more than 200 staff. At present there are 96 staff members with several retirements on the horizon. This small group of staff manages to keep the university functioning but further losses will result in loss of operational capabilities. Consequently a major goal of the administrative team is refilling staff positions as they become vacant.

- Measures taken to reach goals

These are described in detail in sections “§3.1.3 Academic Development Strategy” and “§3.1.4 Research Strategy”.

*Please decide in respect to the specific evaluation area (§3.1.2):*

	Tick
<b>Worthy of merit</b>	√
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

The administrative team is doing everything within its means to effectively govern the Institution. Actions of the national government are serious inhibiting factors in this effort. The administrative team could be much more effective if the legal framework under which it operates was clarified and finalized by the national government.

**3.1.3 Academic Development Strategy**

- Response of the Institution to Faculties and Departments

The TUC is now organized into five Schools with each School offering one undergraduate degree, at least one post-graduate degree, and one Ph.D. degree. At this time there are no interdisciplinary (offered jointly by two or more schools) post-graduate degrees. Undergraduate degrees consist of the equivalent of 10 semesters or 5 years of study and lead to a Diploma in five disciplines of engineering.

The Institution has as its overall goal to pursue excellence in teaching with priorities to regularly review and revise the undergraduate programmes of study and to create relevant single-institution and multi-institution post-graduate degrees including some taught in English which will attract foreign students and internationalize the student body. The Institution defers to the Schools to act on the priorities and provides support to implement actions initiated by the Schools. There appears to be regular interactions between the deans of the Schools and the Institution's administration (Rector and Deputy Rectors). This interaction is further facilitated because the deputy rectors are actively involved in their teaching and research programmes in their home Schools. The Institution also responds to the Schools' needs in appropriate ways. For example, the rector has proposed to establish large common-use teaching laboratories to accommodate the large number of incoming students.

- Goals and timetables

TUC faculty in conjunction with TUC administration are in the process of developing new interdisciplinary MSc degrees which will be taught in English. A list of 11 potential degrees proposed by the faculty and Schools is now being vetted with the goal of establishing 2 to 3 by 2016-17 academic year. These new degrees may follow the model of the Petroleum Engineering MSc degree which charge fees to non-EU students who enrol in the programme. These fees can become a substantial source of income for the Institution. Plans are to offer one of the proposed MSc degrees as a Massive Open Online Course (MOOC). The EEC suggests that any new campus-based postgraduate programmes be closely aligned with the proposed Clusters of Excellence discussed in “§3.1.4 Research Strategy”. Revenue from the tuition paid by the non-EU students should be used to provide financial incentives for the faculty teaching these programmes.

TUC has decided to request that the Ministry of Education recognize its five-year undergraduate engineering degrees as being equivalent to a Master of Engineering (non-thesis) offered by 3+2 programmes in other European countries. This goal is included in TUC's Organizational Proposal and is pending review by the Ministry of Education.

Another major goal of the TUC is to rename the Electronic and Computer Engineering School to Electrical and Computer Engineering School. This name change will better reflect the degrees offered and the research conducted by the School's faculty. It would also provide graduates of the School with better employment opportunities. The name change request has been approved by ΣΑΠΕ but has been pending at the Ministry of Education since 2008.

- Measures taken to reach goals

Many of the above initiatives have made their way through the various levels of faculty and administrative governance at TUC in a timely manner and are submitted to the Ministry of Education where they generally languish as no action is taken by the Ministry. A huge amount of time and effort are invested in developing the initiatives and the written proposals with which they are associated. It is frustrating and demoralizing to the TUC faculty and administration that the Ministry of Education does not take action on these items. This

inaction is highly detrimental to the success of higher education in Greece.

Please decide in respect to the specific evaluation area (§3.1.3):

	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

Justify your rating (optional):

TUC has many worthy academic development goals. Some have been implemented while others are in the process of being implemented. Many others are stymied by inaction from the Ministry of Education. Overall, TUC is forward-looking in refining its academic offerings.

### 3.1.4 Research Strategy

- Key points in research strategy

TUC administration's research strategy for the future is to double research activity over the next 3 years by increasing extramural funding for research, creating Clusters of Excellence, establishing partnerships with national and international institutions, and providing administrative support for submitting proposals and operating grants. In terms of research publications, TUC is one of the most productive research institutions in Greece and compares very favourably with peer institutions in Europe and North America. TUC administration clearly understands that productivity is directly related to extramural funding and is making significant efforts to support faculty in their effort to secure funding.

#### Extramural research funding

Extramural research funding is at impressive levels exceeding 10 million Euro of new grant funds per year (Table 1a, Internal Evaluation Report). The number of grant-funded projects whose budgets are managed by SARF has more than doubled since 2012 and currently stands at 388 (Table 1 below). The number of newly funded projects averaged 82 for 2013 and 2014. Total funds managed annually by SARF have increased by 60% between 2012 and 2014 and now stands at nearly 40 million Euros. Approximately 520 researchers and 40 staff are funded annually by these grant funds. The annual grant-funded research budget now exceeds annual government funding. All these data indicate the ability TUC's faculty to adapt to the economic crisis by pursuing more extramural funding. This is a vital strategy for ensuring the institution's survival and appears to be implemented successfully.

Table 1. Extramurally Funded Projects managed by the SARF office 2013-2015.

Year	Projects	New Projects	% Increase	Total SARF Budget (Euro)	Year-to-Year Increase	% Increase
2012	188			25.098.241,23		
2013	273	85	45%	33.669.905,58	8.571.664,35	34,15%
2014	352	79	29%	36.401.226,30	2.731.320,72	8,11%
2015	388	36	10%	39.589.576,88	3.188.350,58	8,76%

#### Clusters of Excellence

The idea of multidisciplinary Clusters of Excellence was proposed to the faculty by TUC's administrative team (rector and deputy rectors) and the faculty in turn proposed ideas for Clusters which were eventually distilled and reduced to the six identified below. The Clusters of Excellence are intended to contribute towards solving grand societal challenges and are



selected to take advantage of the TUC's research strengths. The proposed Clusters of Excellence are:

1. Water resources and sustainable agricultural development
2. Smart energy
3. Oil pollution
4. Protection, conservation, restoration of archaeological sites and monuments
5. Imaging and diagnostic technologies
6. Digital multimedia, web and mobile services and big data

Establishing Clusters of Excellence will make TUC more competitive and increase their profile in the national and international research communities but the Clusters must be grounded in reality and truly reflect the institution's capabilities and aspirations for growth. Furthermore, they would be most beneficial if they also addressed local, regional, and national needs. It is not clear to the EEC that expertise is currently available at TUC to form all 6 of these clusters and ensure that they can compete successfully for funding. It is also not clear how many address local, regional, and national needs. However, clusters of Excellence should also include extramural partners to add disciplines and expertise that TUC does not have. The participants (individuals and institutions) should be listed and promoted on TUC's website.

Although the EEC's contact with individual faculty was fairly limited during the site visit, our impression is that some faculty with whom we met have some reservations about the functionality of the Clusters.

#### Partnerships

TUC is in the process of formalizing partnerships that will lead to long-term research as well as student and faculty exchanges. One is the Crete Innovation Initiative which is a partnership between seven public institutions and organizations on the island. The goal of the Initiative is to leverage the talents and networks of its members into a cohesive group with much more overall potential for innovation and as a driver for regional development. This Initiative should result in better opportunities to pursue and secure funding. Other partnerships include those with Texas A&M, Texas A&M-Qatar, the State Oceanic Administration of the Chinese Academy of Sciences, and the University of Agder (Norway) for which the MOU was signed during the EEC's visit to TUC. In addition, TUC has been recently identified as a "Centre of Excellence" by the Central European Initiative –PRAISE and invited to participate as a member.

#### Administrative support for submitting and managing grants

TUC's administrative team has an explicit goal of assisting faculty with the preparation, submission, and management of grants. For example, the SARF office (EAKE) assists faculty with budget preparation if requested. Once grants are approved for funding, the SARF office will advance funds to the faculty member so that the research project can be done according to the research timetable. This is an exception to what is typically done at most other Greek educational institutions where such loans are less common and requests are evaluated on a case-by-case basis. This is an action that indicates that TUC is a mature and forward thinking research institution and it should be applauded. According to several faculties with whom the EEC spoke, the SARF office expedites purchases and other expenditures to the extent possible within the confines of the applicable laws. These types of actions provide both motivation and confidence for faculty to prepare and submit grant proposals and should be applauded.

- Research strategy objectives and timetables for achieving them

Each of the above strategies has a projected implementation time frame that appears both appropriate and reasonable.

- Laboratory research support network

TUC's administrative team proposes to establish centralized analytical and teaching laboratories which will be available to the entire TUC community. The centralized analytical laboratory is meant to address problems which individual faculty and Schools encounter with outdated instruments, lack of funds to maintain instruments, etc. This strategy should be carefully deliberated and discussed with the faculty before being implemented because there

are both advantages and disadvantages to this approach. The centralized teaching laboratories are meant to overcome the problems created with the increasing number of students. The current teaching laboratories were designed for smaller number of students.

- Research excellence network

Please see comments about Clusters of Excellence and partners earlier in this section.

- Existence of research assistance mechanisms (for preparing proposals, capitalising on patents and innovations, finding partners for research programmes, etc.)

The current administration has made explicit efforts to support faculty in their efforts to prepare and submit research proposals as described earlier. Several individual faculty and some deans told the EEC that the administration provided excellent support for preparing and submitting large and complicated grant proposals.

<i>Please decide in respect to the specific evaluation area (§3.1.4):</i>	Tick
<b>Worthy of merit</b>	√
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

TUC is already one of the most productive universities in Greece in terms of number of publications and research grant funding. TUC's administration is taking decisive steps to ensure that the Institution's research productivity remains high and the research remains relevant. A few of these steps have been implemented while others are in the early stages of implementation.

**NB**

*Two members of the EEC give a lower evaluation (positive) due to the fact that research strategy with its constituent goals and time-lines has not been actually developed and made publicly available.*

### ***3.1.5 Financial Strategy***

The public operational funding of TUC is systematically decreasing. It went down from 4.702 million euros in 2010 to 3.206 million euros in 2012 and 2.315 million in 2014 (653 euros per student). This represents a decrease of 34.7% over the last 4 years! This decrease is due to the decline of the State Funding which continued over the last years: the Available Central Government OPEX funding has shrunk over 50% from 2013 to 2016. It is estimated at 1.647 million euros in 2016.

Taking into account the fact that the number of incoming students systematically increases, the total central Government expenditure per student (including investment funds) has decreased from 5687 euros in 2012 to 3260 euros in 2015. When taking into account research funds, the University's budget per student is currently almost 5000 euros. From a comparative point of view, these features remain quite far from the European and US standards (the average budget for a student is 10.000,00 euros in France and 40.000,00 euros in the US – with over 200.000,00 euros in Ivy League institutions). This deficit will inevitably have a negative impact to the quality of studies and if the trend is not reversed now it may have irreversible adverse consequences in the near future.

The decrease of the State funding has led TUC to promote a series of strategies in order to find additional funds. These strategies are the following ones:

- A quasi-systematic application of tuition fees for post-graduate degree students – from 1000 euros for the students of the School of Architectural engineering to 3000 euros for the students of the two joint MSc degrees (System Engineering / Applied Operational Research and Analysis) between TUC and the Greek Military Academy.
- The application of registration fees (300 euros) in MSc English-speaking programmes for foreign students (Petroleum Engineering).
- The increase in the number of research grants proposals on a local, national or European level. The research budget has grown from 3.770 million euros in 2010 to 8.341 million in 2014, mainly thanks to European funding which represents about 38% of the total research funding. This strategy also leads in creating or participating to Research Clusters able to respond more eagerly to European Projects and matching funds, such as the Crete Innovation Initiative. The yearly research budget of TUC exceeds the Greek government funding.

One should add that the Institution Council has deliberately decided to focus on the research of new private sector and international funding sources.

In order to reduce its expenses, the TUC has decided to spatially re-organize and concentrate its activities, with the move of the Central Administration and the School of Architectural Engineering from downtown Chania to the Acrotiri Campus in 2014.

In general, the TUC has to deal with some specific constraints such as:

- A complex legal environment and Greek accounting standards, not well suited for an Academic Institution.
- The heavy involvement of the Court of Auditors instead of in-house Auditing, which creates significant delays.
- The lack of revenues from real estate assets.

Like all Greek Universities, TUC has participated in restructuring the Greek Debt through the Private Sector Involvement (PSI) project with 412.000 euros in 2012. The financial strength of the School has been strongly affected. The cash reserves of the School represent, by the end of 2015, 648.000 euros. It hasn't been quite clear how the School intends to use this amount.

Last but not least, the TUC has developed a Quality System for Financial Management (ISO) as well.

*Please decide in respect to the specific evaluation area (§3.1.5):*

	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

### ***3.1.6 Real Estate Development Strategy***

The mail buildings of the TUC are located at the Acrotiri Campus. In this area, the University has to manage 70.000 m<sup>2</sup> of offices, labs, classrooms and support facilities. Building and facility roll out follows the Master Plan that was developed in 1991, while the building permits follow a special purpose legislation that was introduced especially for the TUC Campus and allows a building

factor of 20% thus allowing a total building development area of almost 50.000 m<sup>2</sup> since the campus extends to 2.4 M m<sup>2</sup>.

The University also owns real estate in downtown Chania but also in other areas of the island of Crete. This real estate mainly comes from donors and currently represents 10 houses or apartments, 13 1<sup>st</sup> floor shops and 14 natural areas. Among this real estate, one should note the existence of some historical buildings such as the Old Jailhouse, the Army building (ktirio Merarhias) and the Megaro Papapetrou. The first building hosted the administration of the TUC until 2013. The second building has been under occupation from political activists for more than 10 years. The third building requires significant renovation. The latter has been rented by a kindergarten which decided to take charge of some of the renovation work and expenses. The real estate of TUC is managed by the University real estate exploitation Agency. It seems that a more aggressive strategy in real estate management could significantly increase TUC's internal funds however unclear national laws and inaction by the Ministry of Education have been serious impediments. Such a strategy may seem difficult within the economic crisis period but tourism is quite strong in Chania and could partly counterbalance the effects of the crisis.

From a strategic point of view, one should note that the TUC has recovered the property and management of the indoor swimming pool in the Acrotiri Campus. This represents both a new problem to handle but also an important opportunity for real estate development of the University. The rehabilitation of the swimming-pool has been estimated at around 1.8 million euros. Almost half of this amount could be granted by the European Union funding but it is not quite clear how and where the University Administration can find the rest. It is obvious that some solutions have to be found, or else the management of this building may become a source of unexpectedly high expenses.

Finally the TUC has promoted the creation of some sport fields -mainly tennis courts- that it intends to develop. These sport fields are used by students but are also systematically rented to privates or to sport teams.

*Please decide in respect to the specific evaluation area (§3.1.6):*

	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	√
<b>Negative evaluation</b>	

*Justify your rating (optional):*

The EEC believes that more aggressive action by TUC is needed to capture the potential sources of income offered by the Institution's real estate holdings. Actions may include requesting the support of local publicly elected figures to resolve legislative bottlenecks and inaction by the Ministry of Education.

### **3.1.7 Environmental Strategy**

The green energy strategy of the University involves 3 major areas:

- (i) energy consumption,
- (ii) green transportation,
- (iii) paper consumption.

The University has already taken specific steps to lower energy and water consumption, improve the recycling capability of the University and the transportation efficiency. These efforts were identified as the Green University Initiative and involved a number of systematic steps such as

committee reviews, proposal solicitation, proposal evaluation and decision making.

- (i) With respect to energy savings, the University administration in 2013 reviewed thoroughly the energy consumption of its units and pertinent budget needs and took the following steps:
- Replaced lighting of sports infrastructure with energy efficient lighting (LED).
  - Installed an online energy consumption monitoring system (BMS –Building Management System), as well as an online system for the purchase and consumption monitoring of oil (during the visit real time energy/oil consumption monitoring was demonstrated).
  - Limited the use of old energy-intensive buildings (e.g. the school of architecture and the University administration moved from downtown to the campus area).
  - Holidays, personnel vacation time and other university closings are coordinated. It is suggested, however, that in pace with its fundamental mission the University be always kept accessible to its faculty and researchers – even at a reduced level.
  - Energy upgrades of buildings including thermal facades, new windows, and new heat pumps (such upgrades are still undergoing). BMS system is also planned to be installed in the older buildings (the student dormitory building is already upgraded).

The University also plans to install a 2MWp photovoltaic system (a pertinent study has been already completed and the University is at the stage of obtaining a permit from the local authorities to proceed with the installation).

- (ii) With respect to transportation, the University has significantly increased the number of busses reaching the campus and is planning to support the creation of a smart transportation system, referred to as “Bike Sharing”, a system of 5 stations with a total number of 100 bikes along the route from Chania to TUC campus.

The University also plans to expand the student dormitories with additional energy efficient buildings.

- (iii) With respect to paper consumption, the University reduced printing by approx. 4M pages by making a strategic decision to introduce electronic processes whenever possible (examples include, annual reporting of personnel, research development reporting, accounting, etc.).

With respect to hazardous waste management and urban waste management, the University has the necessary arrangements in place to address pertinent matters. It is worth mentioning that due to its size and specialization, the University has a limited amount of hazardous and urban waste. In particular, hazardous waste is handled /disposed in collaboration with private companies while urban waste is handled by the municipality of Chania. Recycling of paper, glass, ink, batteries and regular lamps, is appropriately handled. The University’s immediate plans are to address the disposal of a small number of large batteries residing in laboratories, and work with the municipality of Chania for the improvement of methods of recycling solid and liquid waste.

Finally, since 2004, the University maintains a nature preservation park that is open to the general public. This is one more testimony of the Institution’s priority to have a green campus.

*Please decide in respect to the specific evaluation area (§3.1.7):*

<i>Please decide in respect to the specific evaluation area (§3.1.7):</i>	Tick
<b>Worthy of merit</b>	√
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

### 3.1.8 Social Strategy

The external constraints to the University's social strategy are the location of the University (expensive touristic area), the prolonged economic hurdles among the citizens of Greece and the decrease in government support (university operational funds).

The University social strategy focuses on:

- (i) creating social policies to mitigate economic disparities (that may discourage students from choosing TUC),
- (ii) developing student support services with respect to food, housing, transportation, and financial assistance,
- (iii) being actively involved with the local community.

Specific steps include:

- Free meal planning for 1,350 students and subsidized meals for all the rest
- Free housing (campus dormitories) for 79 students and subsidized housing for 130 additional students
- Contract negotiations with the Local Transportation Association and subsidization of student transportation cost
- Creation of work study position and other scholarships
- Plans for management of real estate assets of the University to increase revenue streams for the University and, at the same time, contribute to the economic growth of the broader local community (a significant impediment is the laws that management of real estate assets of the University must comply with).
- Active involvement with the state government, municipalities, development companies, technical and industrial chambers
- Community service through professional certifications to the public provided by decanal units (Schools)
- Community outreach activities
  - annual science and technology fair (attracts more than 4,000 visitors mainly primary school students, parents and teachers; shows that the University has a strong STEM philosophy and culture; promotes STEM culture among youth and underrepresented groups; contributes to the preparation of the future generation of scientists)
  - scientific talks open to the public
  - elementary and high school visits (two-way)
  - establishment of the Confucius Institute

Please decide in respect to the specific evaluation area (§3.1.8):

	Tick
<b>Worthy of merit</b>	√
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

Justify your rating (optional):

The University should be commended for their impressive record of community outreach activities.

### **3.1.9 Internationalization Strategy**

TUC has a strong interest in internationalizing education and has completed a SWOT analysis on implementing Internationalization at Home (IaH). Strengths, opportunities, weaknesses and threats were identified.

Strengths include the international experience and professional collaborations of faculty, international character of the city of Chania that makes it attractive to students and appropriate for professional events.

Examples of evidence of the international dimension in research performed at TUC is offered by faculty mobility/exchanges, numerous international distinctions and awards, international collaborative research projects, 18 active international inter-institutional agreements (MoUs), etc.

Examples of evidence of the international dimension in education is offered by the participation in the Erasmus+ inter-institutional agreements (20 countries, 78 agreements) as well as the MSc programme in Petroleum Engineering which is offered in English and is open to EU and non-EU citizens, and the Erasmus Mundus joint MSc programme “International Master in Advanced Clay Science (IMACS)” – supported by the French Clay Group and the International Association for the Study of Clay Minerals and offered jointly from 5 universities in two continents.

Examples of evidence of the international dimension in student life is offered by the TUC presence in the Erasmus student network, the Board of European Students of Technology, the IEEE and the network of TUC alumni abroad.

The University plans to enhance internationalization through the following strategic steps:

- (i) Implement additional MOU’s with a selected group of Universities to enhance student and faculty exchanges,
- (ii) develop joint curricula with international universities,
- (iii) design international student programmes at TUC at the graduate and undergraduate level (although the law currently prohibits offering undergraduate courses in English), as well as,
- (iv) design virtual classrooms and MOOCs.

The University understands that the severe financial constraints may delay the implementation of their internationalization plans. So far, the University’s internationalization efforts on academic programmes are concentrated at the graduate studies level; one graduate programme is offered in English and requires fees for non EU students and additional programmes are currently under consideration. Integration of foreign languages in programme curricula (taught by the staff of the office of foreign languages), and the active assistance offered to students by the staff of the office of Career Services on CV preparation and initiation of connections with professionals in HEI or industry according to international standards and practices, contribute to the internationalization of the University. Finally, the University has recently established the Confucius Institute which will help introduce the Chinese culture to the University and local community.

The EEC strongly recommends that TUC should be given the necessary legal framework from the State to increase their marketing efforts and attract foreign students from countries with strong interest in this opportunity (several potential countries were identified). If the University were able to bypass, the hurdles due to legal constraints related to foreign UG students, then a significant revenue source for the University could have been established.

Please decide in respect to the specific evaluation area (§3.1.9):

	Tick
<b>Worthy of merit</b>	√
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

Justify your rating (optional):

TUC has a broad and comprehensive internationalization strategy.

### 3.1.10 Student Welfare Strategy

Student welfare can be divided into five categories: housing, transport, canteen and dining halls, sport and cultural activities and personal welfare.

#### Housing:

Chania is a very touristic city with an extended summer season that overlaps the teaching semesters. Real estate prices and rents are quite higher than in most other Greek cities. The Akrotiri Campus has a small student dormitory only hosting 79 students. The University is promoting an extension of the housing capacities of the Campus with a new dormitory allowing hosting 75 more students. Due to the small number of the housing capabilities, an additional “rent subsidy” is provided to an additional 130 students that prove low family incomes.

#### Transport:

The TUC Campus is far from the city center where most students are lodging. This means that most students need to deal with transport issues. Transportation services are provided in cooperation with the local public bus operator. Until last year a bus arrived to the campus every 30 minutes. During the current year this rate increased to one bus arrival every 20 minutes. TUC also subsidizes a monthly student bus card. The card costs 18 euros / 25 euros for the rest depending on the students’ family income. However, some students have been complaining for the recent increase of the ticket bus.

There is no alternative to the car/bus transport. The TUC tries to promote the use of alternative “green” means of transport such as the bicycle. The TUC administration has shaped a proposal regarding the creation of bike sharing stations that will enable students to commute between the city and the campus. Nevertheless, it does not exist, for the time being, a specific bicycle route between downtown Chania and the Campus, avoiding thus the risk of a road accident.

#### Canteen & Dining Halls:

Currently 1000 students (almost 25% of the total students’ number) receive a daily meal free of charge while the rest have to pay a very low fare (2.8 euros per meal). The number of students receiving free meals was of 500 in 2010 and will increase to 1350 for the 2015-16 period, in order to support more students during this extended economic crisis period. From a quality assurance point of view, every student can anonymously evaluate the meal quality using an online evaluation form. Highest quality HACCP standards are met.

#### Sport and cultural activities:

Sports facilities include tennis, basketball and football courts. The university organizes Soccer and Basketball tournaments every year, with the participation of more than 350 students. The sports facilities were recently renovated and coaching programmes were recently launched through the University’s asset management company. TUC recently signed an agreement with the Ministry of Sports in order to take over Chania’s indoor swimming center, but this project is subjected to heavy investment, for which the University doesn’t seem to have a specific plan.

It seems that there is some cultural activity for students, including a theatrical act and a concert



performance, once a year. The TUC hosts a club of photography and a radio station (entasiradio.tuc.gr), but the number of students involved in these activities was not available.

Personal welfare:

The TUC has strongly invested upon this aspect of student life. Firstly, TUC students have easy wireless access to the University IT resources when on campus and off campus. In particular, TUC has installed 34 Wireless Access Points in several sites within the city. They are fed by fiber based uplink connections that are based on the municipal Metropolitan area Network of Chania. These Access Points offer broadband internet service to 1118 student households. Secondly, TUC has an office offering career counseling and educational guidance. It maintains a career resources library and a job offerings database. More than this, most professors and researchers of TUC have built a more or less wide network with representatives of the private sector, allowing students to get information and proposals about job opportunities. Focused students' alumni programmes and webpage would be an interesting issue facilitating job matching. Thirdly, TUC has created in 2013, a Student Support Office, offering «one-stop» services center to students. In SSO, student may apply to obtain health insurance for medical services, issue student ID card, ask for help and information and apply for certificates even remotely by using on-line services. Finally, TUC has created a psychological support center, which represents an original tool for student welfare: Students may ask for psychological support. A psychologist provides counseling services, daily in the campus. PSC provided systematic counseling to more than 70 students during the last year.

*Please decide in respect to the specific evaluation area (§3.1.10):*

	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

## **3.2 Strategy for Study Programmes**

### **3.2.1 Programmes of Undergraduate Studies (first cycle)**

*Please comment on:*

- the main strengths and weaknesses of the Programmes

There are two overarching features of undergraduate studies in TUC:

- Promotion of blended learning through information technology infrastructure and extensive use of e-platforms and e-services (e.g. lectures and other course material are available electronically)
- Interdisciplinary, hands-on education (e.g. laboratory based courses)

Excellence in education is rewarded though performance awards that the administrative team established for students, faculty, and teaching support staff.

Main strengths of the Programmes

- Up-to-date curricula according to high international standards.

- (ii) Periodic evaluation of curricula that leads to potential adaptation of course content or introduction of new courses to follow the evolution of the discipline and meet international academic trends. *This approach has been adopted largely following the external evaluations of the Schools by HQA experts.* The Institution's internal evaluation report documents what changes were adopted by each of the Schools. Every effort must be made to continue critical evaluations of the programmes of study on an annual basis.
- (iii) Theoretical mastery as well as adequate hands-on training (through capstone design projects, research projects in courses and thesis requirements).
- (iv) Constructive and systematic use of student input through course evaluations to improve course content and delivery.
- (v) Strong social relevance of programmes (e.g. topics of course projects or thesis are motivated by immediate needs of broader society and local community).
- (vi) Excellent job placement for graduates of certain Schools due to quality training (testimonies on quality of student training were received in the meeting with business people)
- (vii) Quality of student training, institutional research capabilities and infrastructure, and attitude towards innovation have attracted industry to form partnerships with TUC. The most recent example is Nokia which has recently hired more than a dozen TUC graduates and is in the process of signing an MOU with TUC.

#### Main weaknesses of the Programmes

- (i) Large number of students – at this stage more than double the number desired by the Institution.
- (ii) Small number of faculty for the number of students which is not compatible with accredited engineering programmes.
- (iii) Small number of teaching support staff for the number of students.
- (iv) Small number of administrative staff for the number of students.
- (v) Shortage of funds to maintain and expand laboratories.
- (vi) Course prerequisites exist only in the School of Electronic and Computer Engineering. Recent data show that prerequisites are having a positive effect on the number of students passing courses and on the time to graduation. The remaining Schools have been reluctant to address this issue. As a result, students continue to take courses out of sequence reducing learning outcomes and creating a host of other academic and operational problems.
- (vii) Syllabus is not available for every course.
- (viii) The Institution does not have a uniform electronic teaching platform across all Schools.
- (ix) Poor attendance by students in lecture courses.
- (x) Average time to degree more the 6 years.
- Basic obligations of students
  - (i) Register and successfully complete the courses that define the programme curriculum; the curricula are a combination of required and elective courses.
  - (ii) Each course has a number of credits; the total number of credits needed for an engineering degree is 300; the minimum number of years to complete the degree requirements is 10 semesters
  - (iii) Depending on discipline needs, programmes may use prerequisites in the curriculum.
- Central and External Evaluation of Academic Units
 

It was observed that all Schools have thoroughly reviewed their External Evaluations and addressed/implemented the recommendations included in the reports. Most recommendations

were completely addressed, some are currently being addressed, some are impossible to address due to the financial situation of the University (significant reduction in State funding), and a few were not implemented for a variety of reasons.

It was observed and uniformly asserted by EEC that the Central Administration is immediate, responsive, efficient and successful in facilitating and directly supporting the implementation of the recommendations presented in the External Evaluation reports of the Schools.

General Comments and Suggestions for Improvement:

The University should be commended for the first year student orientation initiative. The University may consider using senior students as programme ambassadors and student advisors of first and second year students to build a culture of course attendance (the EECE School has already taken measures in the direction of changing the student culture and assigns a faculty advisor to every incoming class which can be shared as best practice with other Schools).

The University should be able to define/control the number of admitted students to minimize the number of stagnant students. It should be also allowed by the State to introduce new revenue streams (e.g. tuition-based programmes for international students at all levels). If either one of the above needs cannot be met, more State funding flow to the University is necessary.

The University should be commended for cultivating entrepreneurship and technology innovation among its students (the EEC committee met with several recent and former graduates who created successful international businesses). The Central Administration may consider expanding the support to faculty to encourage student innovation and entrepreneurship in their programmes and build rewarding mechanisms for such student efforts.

<i>Please decide in respect to the specific evaluation area (§3.2.1):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

The above rating is a reflection of how funding cuts, increases in student numbers, and loss of faculty and staff are jeopardizing the quality of engineering education, which requires small student to teacher ratios. It is also a reflection of lingering issues such as the lack of a method for enforcing course prerequisites where appropriate in four of the five Schools, poor attendance of lectures, very poor graduation rates, etc. Nevertheless, TUC administration, faculty, and staff must be commended for efforts made towards maintaining the quality of education despite all the external obstacles.

NB

*Two members of the EEC give a lower evaluation (partially positive) due to the fact that the major external constraints mentioned above undermine quite seriously the quality of delivered programmes of undergraduate studies.*

### **3.2.2 Programmes of Postgraduate Studies (second cycle)**

*Please comment on:*

- The main strengths and weaknesses of the Programmes

The TUC currently offers 9 postgraduate programmes which lead to a MSc degree. None are jointly offered by TUC Schools; however, three of the degrees are jointly offered with other

institutions and two are taught in English. The 9 MSc degrees are:

- (i) Geotechnology and the Environment
- (ii) Electronic and Computer Engineering
- (iii) Environmental Engineering
- (iv) Space, Design and the Built Environment
- (v) Production Engineering
- (vi) Systems Engineering (joint with the Greek Military Academy)
- (vii) Applied Operational Research and Analysis (joint with the Greek Military Academy)
- (viii) Petroleum Engineering (English)
- (ix) International Master in Advanced Clay Science

The International Master in Advanced Clay Science is an Erasmus Mundus Joint Master Programme and is supported by the French Clay Group and the International Association for the Study of Clay Minerals. In addition to TUC, partner institutions are the University of Poitiers (France), University of Aveiro (Portugal), University of Ottawa (Canada) and Federal University of Rio Grande Do Sul (Brazil). The programme is taught in English.

The Petroleum Engineering Masters was first offered during the 2014-15 academic year and was designed to attract international as well as Greek students. It is taught in English and had more than 80 applications for 20 available positions during the 2015-16 academic year. Non-EU citizens are required to pay tuition.

The EEC finds that the TUC's postgraduate programmes are robust and dynamic with new programmes being added to address societal needs and support emerging sectors of the economy. Another strength is creativity and a trend towards internationalization with the development of the International Master in Advanced Clay Science and the Petroleum Engineering Masters as well as the programmes currently under development as described in section “§3.1.3 Academic Development Strategy”. There are currently 805 enrolled students. The acceptance rate, depending on the programme, is between 60% and 80% (Table1a, Internal Evaluation Report) and the majority of applicants are from different disciplines and/or from different institutions. There appears to be a large number of postgraduate students who do not complete their degrees. This may be a factor of the high acceptance rate and perhaps the Institution should be more selective when admitting students to MSc programmes. A policy should be established that drops non-performing students from the rolls.

The EEC had opportunity to speak to several MSc students during the site visit and all seemed very satisfied with their experience at TUC. A majority of students who complete their MSc studies publish their research in peer-reviewed journal articles.

One weakness is that currently none of the Schools are working together to offer interdisciplinary postgraduate programmes. However, several of the programmes currently under development will be interdisciplinary and aligned with the proposed Clusters of Excellence discussed in section “§3.1.4 Research Strategy” to enhance and leverage the synergy of the Clusters.

A major problem for the sustainability of the current postgraduate programmes is funding. TUC sees the offering of new postgraduate programmes in English, which attract fee-paying non-EU students, as a means for securing funding for these programmes. The EEC agrees that this is a reasonable approach to solve the funding problem which also has the advantage of significantly internationalizing the campus. Revenue from the tuition paid by the non-EU students should be used to provide financial incentives for the faculty teaching these programmes.

- the basic obligations of students, e.g. attendance of lectures, course requirements, etc.

The MSc programmes require enrolled students to take courses and conduct research. The ECTS requirements differ by programme but all require at least 60 ECTS. Postgraduate programme courses are different from undergraduate courses and typically have a much higher work load which is reflected by a higher ECTS per course. Attendance is mandatory for postgraduate programme lectures although students indicate that interest is high and they attend willingly. A typical student will complete an MSc programme at TUC in less than two years.

- the way the Central Administration of the Institution deals with any remarks and recommendations that the external experts pointed out in the External Evaluation of Academic Units

The external review of the Schools and their postgraduate programmes is forwarded to the Schools by the Institution's administration and it is incumbent upon the School to address the review and make the suggested improvements. Suggested improvements to postgraduate programmes are discussed by the faculty and may be adopted and incorporated during the regularly-scheduled programme review periods which typically occur annually.

<i>Please decide in respect to the specific evaluation area (§ 3.2.2):</i>	
<b>Worthy of merit</b>	Tick
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

TUC currently has nine MSc programmes three of which are multi-institutional. One is taught in English. Several more highly relevant programmes are in the process of development. Students with whom we spoke were very complimentary of the programmes. All these positives are slightly offset by a very high acceptance rate and a relatively large number of MSc students who do not graduate.

### 3.2.3 Programmes of Doctoral Studies (third cycle)

*Please comment on:*

- the main strengths and weaknesses of the Programmes,
- the basic obligations of students, e.g. attendance of lectures, course requirements, etc.
- the way the Central Administration of the Institution deals with any remarks and recommendations that the external experts pointed out in the External Evaluation of Academic Units

Each of the five Schools at TUC offer a programme for Doctoral Studies. The conditions for obtaining a Ph.D. are conforming to the ones defined by the European System of Higher Education. A Ph.D. student must obtain 180 ECTS during a minimal period of 6 semesters. A certain number of these ECTS are obtained through a series of courses, which in some cases are the same with the MSc degree courses. The Ph.D. students can choose their courses among those delivered in the different MSc programmes within TUC.

The PhD students receive 120 ECTS credits for completing their PhD dissertation. In the School of Environmental Engineering one of the prerequisites for graduation is the student to have published or submitted at least one peer-reviewed journal paper. It is suggested that the list of scientific journal must be clearly defined in order to avoid "grey press" publications. The external evaluations of the different Ph.D. programmes were rather encouraging and have also noted the high quality of TUC's Ph.D. students but have also focused on the fact that a distinct Ph.D. teaching programme should be developed in the long run.

There are some contradictory elements concerning the number of Ph.D. students in TUC: for example, the overall figure of Ph.D. students in 2014 is 307, but when adding the Ph.D. students of different schools, we get only 272. In both cases, there is an increase of the number

of Ph.D. students from 2009 to 2014. Using the second series of data, we have 194 students in 2009, 232 in 2013 and 272 in 2014. The students increase in the 2013–14 period is mainly due to the registration of students in the School of Architectural Engineering, which is far more recent than the other ones. Production engineering and Environmental engineering Ph.D. students represent each 31% of the total Ph.D. students. In any case update of the lists of PhD students would be advisable.

Some Ph.D. programmes seem to be very attractive, at least within Greek post-graduate students. A 63% of the Ph.D. students of the School of Production engineering received a Master degree in a different University than TUC. Similarly, 62% of the students that received their Ph.D. from this school have found a job within a Greek or a foreign university or research institute. Unfortunately, complete information on Ph.D. programmes is not available for all schools and it is sometimes difficult to have a clear idea of the way these programmes are conducted. It would be quite useful to calculate the average numbers of years necessary for a Ph.D. student to finish and present his/her work.

Through the discussion with Ph.D. students some important issues emerged:

- The research activity and participation to conferences of a Ph.D. student strongly depends upon his/her supervisor's ability to respond to national or European research programme calls;
- The trend of the research activity of a Ph.D. student strongly depends upon the ability of his/her supervisor to secure funding through National or European programmes funding.

This clearly means that the Ph.D. students are in a quite unequal situation depending upon their School's and their supervisor's ability or possibility to insert themselves to national and European research programmes.

Moreover, Ph.D. students are very anxious about their future since, in many cases, a higher diploma or a higher specialization is not synonymous with a better matching with the recruiters' preferences in the job market. Most of these students aim to follow an academic or a research career which seem compromised in Greece, due to the economic crisis. It seems, however, that many students manage to obtain interesting positions abroad.

A horizontal organization of Doctoral studies should be examined. This means that the Ph.D. students could, to a certain extent, cooperate with other researchers of TUC but also with other Ph.D. students on research programmes. A yearly seminar where Ph.D. students present their work in front of other Ph.D. students and researchers could also generate positive feedback for all students and, most of all, for the more isolated ones.

<i>Please decide in respect to the specific evaluation area (§ 3.2.3):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

### ***3.3 Profile of the Institution under evaluation – Conclusions and recommendations***

*Please complete the following sections regarding the overall **profile of the Institution under evaluation**:*

- *Underline specific positive points:*

1. The Institution is populated by highly skilled and highly motivated faculty, staff, and graduate students who have the potential, will, and ability to excel.
2. The Institution's leadership is dynamic and committed to strategically plan ahead and to solve both short and long-term problems that may interfere with the strategic planning of the Institution.
3. The leadership appears to have very good working relationships with the support staff, the faculty, and the Schools.
4. An increasing number of incoming students which currently exceeds 25% identify the Institution as their first choice for their studies. This is a positive trend and the Institution must do its utmost to promote itself and make potential students aware of the advantages it offers so that it can increasingly attract high calibre students.
5. The Institution's administrative team and the Deans of the Schools are proactive in developing actions to retain high-performing faculty under the current difficult economic conditions.
6. All five Schools of the Institution have started adopting the ECTS system and the Institution's administration is promoting the use of diploma supplements.
7. The Institution has developed some and is in the process of developing more postgraduate programmes that address societal and market needs which will be taught in English and are expected to attract international students. International students will pay fees which will bring much needed revenue to the institution.
8. Research is a core mission of the Institution and as a result, TUC delivers scientific output of high calibre and volume.
9. The society outreach is significant both in terms of consulting services and interaction activities with the local society and beyond. The environment-friendly approach of the Institution to many issues, as those of green energy, is underlined.

- *Underline specific negative points:*

1. The mission statement and goals of TUC as written in the Internal Evaluation Report are overly broad and difficult to address realistically.
2. Problems persist with student attendance, lack of prerequisites, time to graduation, graduation rates, and other related issues in the undergraduate programmes of study.
3. Although outside the Institution's grasp the following critical issues are underlined, i.e. student intake and level incompatible with capacity and mission of the Institution, faculty numbers inadequate for an engineering institution, level of funding far below accepted ranges.

- *Make your suggestions for further development of the positive points:*

1. Consider increasing further scientific synergies and partnerships both internally across Schools and externally with relevant bodies, especially with those based locally.
2. Implement financial incentives for faculty teaching the postgraduate programmes taught in English.

- *Make your suggestions on needed steps for improvement:*
  1. The Institution Leadership should develop strategic plans to increase the Institution's ability to serve its mission by fostering interactions internally as well as with other entities and, potentially, by adding unique undergraduate engineering programmes currently not offered by other Greek institutions.
  2. Increase efforts to communicate the Institution's goals and culture to students so that they feel that they have a stake in the Institution's success.
  3. EEC suggests that TUC reassess its published mission and statement and goals so that they are more specific, achievable, and can be used to assess the performance of TUC in future evaluations.
  4. Schools should align their mission and goal statements with TUC's mission and goals.
  5. The community of TUC should consider developing a physically more comfortable and student-friendly environment on campus.
  6. The Central Administration and the Schools should consider increasing their branding and marketing efforts.
  7. The Central Administration and the Schools should consider increasing their efforts to bring potential employers to campus through job fairs or similar activities.
  8. The state should urgently take steps toward improving the quality of studies through relaxing constraints pertinent to student intake, faculty hiring, and public funding – in a framework of providing more academic autonomy to the Institution.



## 4. INTERNAL SYSTEM OF QUALITY ASSURANCE

### 4.1 Quality Assurance (QA) Policy and Strategy

The Institution should be commended for treating quality assurance as an integral part of its mission and a major priority. This is evidenced by the fact that personnel and other resources are allocated to this effort (a Vice Rector position has been created and quality assurance and information technology services have been given high priority). The Institution took a bold first step toward the development of a solid QA system leading to credible self-accreditation of its programmes. As a general observation, the Institution has all necessary elements ready to build a set of strong QA processes in the very near future that will help maintain a robust, high level of competitiveness.

#### Suggestions

- The implementation of QA should cover all strategic goals (teaching, research, programmes, and services) as identified in the Self-Evaluation process. So far, most of the Institution effort has focused on QA of the programmes.
- QA processes should be defined in a way that includes a detailed description of the data selection method, data analysis and evaluation method, and pertinent actions and reactions/feedback. This way we make sure that QA is a set of processes that safeguard implementation, control and transparency. In addition, QA should address the potential for change of the Institution as a whole.
- The QA processes should explain and justify matters pertaining to collecting and handling of personal data such as appropriateness of data size, respect of privacy, constitutional rights and be sufficiently robust to assure future academic quality review and actions for improvement. In addition, QA processes should be developed in a way that contingencies are dealt with as timely as possible.
- The academic units should proactively increase their interaction and collaboration with MOΔIII so that they are better prepared for the future role of MOΔIII (according to State planning, MOΔIII will be assigned a more substantial role and expected to be well aware of the available programmes, contribute to their navigation and monitoring and eventually be their accreditation body).
- The office of Career Services should try to enhance their connections with alumni and their interaction with industry

<i>Please decide in respect to the specific evaluation area (§4.1):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

#### *Justify your rating (optional):*

EEC understands that QA policy is still at its infancy in Greek HEI. TUC has the will and momentum to thoroughly address this issue but the process is still not in place.

#### **NB**

*Two members of the EEC give a lower evaluation (partially positive) due to the fact that QA policy and strategy have not been developed yet into a coherent set of QA processes.*

#### **4.2 Design, approval, monitoring and evaluation of the study programmes and degrees awarded**

The academic programmes of a School are designed, reviewed, and modified by its faculty on a regular basis. Modifications are approved by the Senate. Assessment of Programmes is supervised by pertinent committees in the School. Programme descriptions are available both in electronic and printed form. Course sequencing is recommended by the School. Hence each student may plan his/her own individual study programme. One out of the five schools has modified this practice by introducing prerequisite courses. The programmes have recently adopted the ECTS credit hour system; they are currently calibrating the mapping of credit hours to courses according to their programme characteristics. Students participate in QA of programmes in various ways, e.g. through the course evaluations, job placement and general level of satisfaction. Improving student attendance is a high priority of the Institution and steps have been taken already towards this direction (e.g. freshman orientation, advisor per class). The programmes include well-structured international mobility and placement opportunities for faculty and students - the Office of Career Services is used for such purposes also.

##### Suggestions

- The programmes should clearly formulate and publish the programme learning outcomes and use qualitative and/or quantitative metrics to show their level of achievement. The learning outcomes should be compatible with the pertinent National (or European) Framework describing the qualities of graduates at any exit level of Higher Education. The School should then make sure that graduates cover satisfactorily the above criteria and can be credibly assessed in this framework. ECTS units to reflect actual work-load of individual courses.
- The programme assessment process should be defined in terms of data selection method, data analysis and evaluation method, and pertinent actions and reactions/feedback; it should also be aligned with programme learning outcomes.
- Alternative methods should be identified to address the low student attendance of courses whenever existing methods do not work as expected (e.g. use of student ambassadors, student mentors, etc.).
- The Leadership of the Institution is urged to consider, in collaboration with the Schools, the merit of using prerequisite courses in different programmes of study as appropriate.
- EEC encourages the continuation and possible expansion of actions to strengthen the practical/hands-on component in the academic programmes, such as course projects, practical training, educational trips, etc.

<i>Please decide in respect to the specific evaluation area (§4.2):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	√
<b>Negative evaluation</b>	

*Justify your rating (optional):*

Learning outcomes are not yet embedded in TUC courses. ECTS units to be adjusted.

### 4.3 Teaching and learning - Assessment by students

The Institution/Schools provide multiple learning paths that are coherent and follow student needs and market trends. Multiple paths are only within the same academic programme. The student to faculty ratio is very high for an engineering institution under any acceptable criterion applicable to a decent peer Institution. The laboratory infrastructure available to students does not meet requirements in terms of number of available stations for the size of the student body (multiple sections that take place very late in the evening are thus needed to complete laboratory assignments). The duration of the exam period is about 40% of the time devoted to teaching. Students are offered guidance and support by the faculty and dedicated staff on a one-on-one or group basis. The Institution recently hired a psychologist who supports students on a need basis and shows how the Institution cares about the well-being of its members. Student advisors are in place for most Schools while some Schools are more proactive than others in terms of advising and support (for example EECE has established advisors per class and considers a number of possible ways to make sure that students meet with advisors at least once a year). In general, students are informed adequately about the assessment criteria of their performance in courses. At the Institution level students are informed about the programmes, course requirements, expectations and evaluation process of their performance as early as the freshman orientation – this is a new well attended activity that takes place early in the semester. Subsequent student advising is carried out at the School level by the faculty advisors either during their office hours (that they publish) or on a need basis. Student complaints are addressed on a need basis by faculty advisors and the Chair. Also the Vice-Rector for Academics handles student complaints at the Institution level.

#### Suggestions

- The critical issue of student to faculty ratio should be urgently addressed.
- A shorter exam period should be sought after in favour of other complementary activities such as gaining of practical training.
- Additional technical personnel to support laboratories are clearly needed.
- Schools should make the most out of the qualified teaching support staff (EΔIII) not only in terms of laboratory and exercise activities but also toward supporting other teaching components.

<i>Please decide in respect to the specific evaluation area (§4.3):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

#### ***4.4 Admission of students, progression and recognition of studies***

The procedures and criteria for admission to the second and third cycles of studies are implemented with consistency and transparency. Recognition of higher education degrees performed by the State through the DOATAP organization (this is common for all higher education institutions in Greece). There are clear and distinct procedures regarding periods of study while transfer students are recognized according to published procedures within the Institution, mainly through written exams. Recognition of non-formal and informal learning is not foreseen in this Institution as well as procedures regarding mutual recognition of programmes among Institutions. The Institution has implemented an efficient electronic system that provides students with detailed information about their degree including student transcripts, course descriptions and other information that portrays the complete academic path of the student upon graduation (Diploma Supplements). It is worth mentioning that this information is available both in Greek as well as in English which facilitates potential employment of students or further study opportunities abroad. The Institution has in place processes and tools to collect, monitor and use information regarding student progress.

##### Comments:

The number of incoming undergraduate students is excessive for the size of the Institution. This number is dictated by the State and should be set at the number suggested by the Institution to safeguard the education quality of the students. For example, it was observed that the most recent incoming class exhibited outstanding academic credentials only for a number of students that was approximately equal to the number of students requested by the Institution; the academic credentials of the additional students admitted due to the State's unilateral decision were weak. The above situation presents a serious threat to the very mission of the university. The warning is clear enough and actions need to be taken.

A related problem is the decreasing ratio of exit to incoming students leading to a high number of stagnant students (which might be predicted using the correlation between student attendance and performance). The latter has also an impact on programme quality and immediate actions need to be taken to provide an efficient and long lasting solution to this problem. The proportion of inactive MSc and PhD students is high. Thus, attention is needed to determine what defines "good academic standing" of M.Sc. and PhD students.

<i>Please decide in respect to the specific evaluation area (§4.4):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

#### 4.5 Quality Assurance as regards the teaching staff

Presently, recruitment of faculty is almost stalled. The Institution has a well-documented faculty recruitment and hiring process. This process provides all necessary assurances that new faculty members meet or exceed a certain level of competence. Opportunities for career advancement are offered to the faculty through secondment to other Institutions, e.g. via the Erasmus programme, or sabbatical leave. The Institution should be highly commended for the faculty performance awards that were recently established at both junior and senior level.

As Institutions are asked to perform periodic and extensive QA exercises, they will need to have in place concrete performance evaluation processes of their faculty. In this Institution, potential weaknesses of faculty in delivering their courses are normally identified through monitoring of the course evaluations completed by students. Scientific activity of the faculty is reflected in their annual reports which are collected by the Schools and forwarded to MOAIII. Detailed assessment of the work is performed during the hiring or promotion process. No explicit connection between education and research is so far monitored. Faculty members receive the necessary feedback on their personal teaching performance through course evaluations completed by the students. A regulatory framework is in place for the investigation of the disciplinary and academic misconduct of the faculty. While faculty performance data are monitored by the Deans who address potential issues, it is important that the faculty performance evaluation and pertinent actions follow an agreed procedure. The Institution has the necessary elements (electronic tools, governing committees, etc.) to establish such a procedure immediately.

It is important that the Institution reviews thoroughly the course evaluations and makes an effort to address the shortcomings identified. The Institution should then be able to assess how successfully shortcomings were addressed.

<i>Please decide in respect to the specific evaluation area (§4.5):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

This component is not incorporated in the QA system of any Greek University.

#### 4.6 Learning resources and student support

The Institution has taken significant steps to establish systematic monitoring, review and improvement of supporting services including the restaurant, dorms, athletic infrastructure, heating and cooling system. It is important that the Institution creates a collective process that deals with the monitoring of all supportive services

Library and information systems infrastructure are at a satisfactory level and are continuously improving. However, the continuous reduction in State operational funds imposes an imminent threat for the smooth operation of the Institution. For example, some problems were identified with respect to the electronic access to journals due to a substantial reduction in the library's operational funds. It is worth mentioning that recently athletic infrastructure management was significantly improved and created, for the first time, a small revenue stream.

Tutoring assistance is offered at the School level within and outside the context of a course. Within the context of a course tutoring is offered by faculty and as well as teaching and research assistants on a systematic basis during office hours. Outside the context of a course tutoring is offered by faculty on a need basis. Student counselling is provided through the professional psychologist of the Institution.

*Please decide in respect to the specific evaluation area (§4.6):*

	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

#### ***4.7 Information Systems for Recording and Analysing Data and Indicators***

*Please comment on:*

- whether the Institution possesses reliable means for collecting, analysing and utilizing valid information in respect to key performance indicators, the profile of the student population and student progression, success and drop-out rates

TUC, through its Schools and Departments, has been collecting a variety of information on key performance indicators for many years now. Internally developed information systems as well as commercial software (e-University applications) and processes exist for the collection, utilization and dissemination of information with regards to student population and student progression, success and graduation rates. Among others, an in-house information system (IS) is developed (<http://www.aqua.tuc.gr/>) for the continuous process of collecting and managing data and providing information on indicators, such as student to faculty ratio, student progress, etc. Further effort should be put towards the integration of these tools, as well as their utilization by all departments in a way that benefits them the most.

##### References

- TUC's presentations
- Visits and discussions on TUC's premises
- TUC's Internal Evaluation Report & Annexes 1, 2, 16

- whether the Institution possesses reliable means for collecting, analysing and utilizing valid information regarding its other functions and activities

TUC, despite the lack of a sufficient number of administrative (as well as teaching and research) staff, is operating a number of (mainly in-house developed) tools within or across its Departments and Services (i.e., in-house administrative & financial s/w application for managing all funded projects in the Research Committee/ Special Research Funds Account).

##### References

- TUC's presentations
- Visits and discussions on TUC's premises
- TUC's Internal Evaluation Report & Annexes 1, 2

- whether the Institution collects information about student satisfaction with their programmes of study and the career paths offered to graduates

A well-organized process coordinated by the University's Quality Assurance Unit and supervised by the Internal Evaluation Groups across all Schools, is in effect collecting information mainly through evaluation forms (hardcopy or electronically).

At the same time, with the support of TUC's ICT Department, the Career Services Office operates an Online System that supports graduate students towards their job search and evaluation efforts. The Career Services Office is also available for personal advice and coaching of their graduates, despite its significant understaffing status (only one full time employee). Through processes such as those mentioned above, sufficient information is being collected, analysed and provided to the Schools as input for their annual process of reviewing and updating their course syllabi. Although the funding of the Office of Career Services which comes from EU ends at the end of October 2015, the Office will continue to offer its services to the University community and its alumni. This was a strategic decision of the Central Leadership Team for which TUC should be commented.

##### References

- TUC's presentations

- Discussions on TUC's premises with the manager of the Career Services Office as well as undergraduate and graduate students.
- TUC's Internal Evaluation Report & Annexes 1, 3
- Reports of the Career Services Office including  
[http://www.career.tuc.gr/3572.0.html?&L=0%3Fevent\\_id%3D104%3Fevent\\_id%3D104%3Fevent\\_id%3D104%3Fevent\\_id%3D104](http://www.career.tuc.gr/3572.0.html?&L=0%3Fevent_id%3D104%3Fevent_id%3D104%3Fevent_id%3D104%3Fevent_id%3D104)

- whether the Institution seeks comparison with other similar establishments within and beyond the European Higher Education Area, with a view to developing self-awareness and finding ways to improve its operation

TUC's commitment to excellence encourages all members of its community towards continuous enhancement of the educational services provided as well as continuous adaptation to international quality standards. In this context, although TUC is considered a rather new and small University, it is well known internationally with significant achievements and awards. All departments have good rankings. For example, the School of Environmental Engineering is positioned in 251-300 of the QS World University Rankings by Subject in Environmental Sciences. TUC is being harmonized to the European Higher Education system. Its Schools have already established Inter-institutional Agreements (20 countries, 78 Agreements till 9/2015) and most of them actively participate in Erasmus encouraging student networking and exchanges.

Based on information found in documentation and presentations provided, as well as in the WWW, EEC is convinced that TUC actively promotes excellence in education and research by encouraging, incentivising and rewarding its members for being competitive not only at a European level but also internationally.

#### References

- TUC's presentations
- TUC's Internal Evaluation Report Γ.8

<i>Please decide in respect to the specific evaluation area (§4.7):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*



#### 4.8 Dissemination of information to stakeholders

Please comment on:

- how the Institution sees to the notification of information on the programmes offered, the expected learning outcomes, the degrees awarded, the teaching, learning and assessment procedures it uses and the learning opportunities it offers to students

As clearly mentioned in TUC's internal evaluation report, information on programmes offered becomes publicly available at least through the School websites well in advance the official start date of the academic year. This may be also documented in Institution's procedures.

Information on expected learning outcomes, degrees awarded as well as all related procedures and opportunities are publicly available on the website. The websites are timely updated so that new information is effectively communicated to interested groups.

##### References

- TUC's presentations
- TUC's Internal Evaluation Report Γ.9

- whether the information regarding the Institution's offered programmes of study is available in English or in other languages

All related information is generally available both in Greek and in English.

- whether the teaching staff's CVs are included in the publicized information, both in Greek and in English

Related information available is provided both in Greek and in English.

Do you wish to make any comment on a point not included above?

Further homogenization of TUC's website may be considered. The whole website should be reconstructed based on advanced content management tools and techniques, as long as TUC has the internal capacity in terms of infrastructure (like centralized DC) and human capital to develop such a solution, which should allow all Schools and members to update information following the same rules.

<i>Please decide in respect to the specific evaluation area (§4.8):</i>	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

#### ***4.9 Continuous monitoring and periodic review of the study programmes***

*Please comment on:*

- the procedure followed with regard to assessment and periodic review of the contents of study programmes

TUC has implemented an in-house application for monitoring, collecting and managing information for review and assessment of its activities. To this extend, the procedures followed have been formalized to some extent and documented, so that community members are able to provide all required information for further processing. Quality Assurance Unit (MOΔΠΠ), QA Teams (OMEA), as well as the Rector and Deans, have full access to all information needed, in order to make the most out of the information collected. Information is being reviewed in detail, qualified and analysed, so that results are being generated and circulated to an appropriate audience.

The system in place is well documented, directives for the procedures followed are available and reports are generated and distributed as necessary.

Based on the experience gained from the involvement in the procedures, further documentation may be prepared, formulating the processes in place, and thus preparing the Institution for certification of its internal operations.

- whether this procedure takes into account the changing needs of society

Based on feedback and documentation provided, the procedure takes into account the continuously changing needs of society, upon reviewing the status of the existing study programmes.

- whether this procedure takes into consideration the findings emanating from monitoring the graduates' career paths

Any feedback coming from monitoring the career paths of graduates, which is normally being done by the Office of Careers Services is communicated to the staff and/or committees responsible for the evaluation of the study programmes.

- the procedure with which the reviews take into account student work load, the progress rate and completion of studies

TUC considers seriously the evaluations of the study programmes, student work-load, their progress and time to completion of studies.

For example, the School of ECE after long and extensive discussions, applied course prerequisites in its study programme, and asked for the consultation of TUC's Counselling & Psychological Support Office. Initial evaluation of the effect of prerequisites on student performance showed that students performed significantly better in subsequent courses. Initiatives toward improving progress rate and completion of studies would be advisable to be undertaken across TUC.

- whether this procedure takes into account the cutting edge research activities in that particular discipline

Since research activities are implemented by the faculty members of the Schools in any discipline, any evolution is seriously considered throughout the periodic evaluation of the study programmes.

- whether the involvement of students and other stakeholders is secured in the revision of the programmes

As long as, the assessment processes are being monitored and evaluated taking into account all

information provided by the students and other stakeholders, their involvement is considered part of the whole monitoring and review of the study programme. Any feedback and comment is being evaluated and considered towards adaptation. Strengthening of stakeholders' involvement would be nevertheless advisable.

It is recommended that this monitoring and review process should be further homogenised and documented, so that similar processes might be followed by all Schools and members of the university community.

*Please decide in respect to the specific evaluation area (§4.9):*

	Tick
<b>Worthy of merit</b>	
<b>Positive evaluation</b>	√
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

#### ***4.10 Periodic external evaluation***

This is the first time an External Institutional Evaluation is performed in the Higher Education System of Greece. TUC has already considered actions towards the observations of the External Departmental evaluation. During the oral presentation of this evaluation and following EEC's recommendation, the Council President, the Rector, and the Deputy Rectors along with the Deans of Schools confirmed their commitment on further cooperation towards achieving common actions and practices on procedures required.

Following the QA procedures under development, Departments and Faculties should be commended for using evaluation feedback constructively to advance their programmes and operational procedures.

*Please decide in respect to the specific evaluation area (§4.10):*

	Tick
<b>Worthy of merit</b>	√
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

#### **4.11 Internal System of Quality Assurance – Conclusions and recommendations**

*Please complete the following sections regarding the internal system of quality assurance:*

- *Underline specific positive points:*

1. The TUC leadership places great emphasis on its internal system of quality assurance and has established a dedicated Deputy Rector position responsible for the Internal Quality Assurance Unit (MO.ΔΙ.Π.) This is unique.
2. The Internal Quality Assurance Unit (MO.ΔΙ.Π.) actively supports the implementation of processes related to all aspects of quality assurance within the Institution.

- *Underline specific negative points:*

- ✓ The Internal Quality Assurance system has not been fully developed and only partially implemented.
- ✓ The undergraduate programmes are critically affected by external factors such as high student to faculty ratio, high number and uncontrolled academic level of student intake, minimal operational budget.

- *Make your suggestions for further development of the positive points:*

1. Closer collaboration of MOΔΠΠ with Schools on QA issues.
2. ΑΔΠΠ should provide more concrete guidance for the development and implementation of an internal QA system.

- *Make your suggestions on needed steps for improvement:*

1. Ensure that ECTS units for each course reflect appropriately all components of course load.
2. Fully develop and implement Internal Quality Assurance System to (i) cover adequately all four sectors of institutional life, that is programmes of study, teaching, research, infrastructure, and support services, (ii) establish simple and straightforward operational procedures to safeguard quality assurance, and (iii) develop detailed operations manual addressing all quality assurance procedures.
3. The factors affecting undergraduate studies need urgent attention. In this context, the EEC's main recommendation is addressed toward the State to undertake the necessary actions in upfront priority, starting with a national strategic plan for higher education and the provisions for student intake.

## 5. OPERATION OF THE CENTRAL ADMINISTRATION OF THE INSTITUTION

### 5.1 Central Administration Services of the Institution

Please comment on:

- The operation of the central administration services of the Institution:

The EEC met with the directors of each of the administrative services groups and Mr. Spyros Psychis, the general director of administrative services. Mr. Psychis presented the functions and services offered by each group. The presentations were supplemented with electronic documents provided to the EEC and visits to the library, the foreign language services building, and the facilities of IT services. The EEC was impressed by the professionalism, dedication, and can-do attitude of the administrative services. The EEC had the opportunity to tour the campus facilities and to speak to several support services staff and faculty. Out of this interaction, our impression is that the administrative services team provides excellent support to teaching and research programmes. Some additional support to the Schools with administrative personnel should be considered by the Institution.

Comments about how effectively SARF supports the research mission of the TUC are included in section “3.1.4 Research Strategy”.

The EEC was impressed by how effectively the IT services team supports the campus. This team not only ensures that traditional IT services (internet, wireless, computer labs, etc.) are available to the entire campus but has developed unique tools and services to support research, teaching and administrative activities. For example, they have developed customized software for several administrative services which improved productivity and efficiency.

The EEC met with the director of the Career Services Office in conjunction with a meeting with TUC alumni to discuss how this service supports student placement. The office maintains a database (ΑΤΛΑΣ) of potential employers which was created through an ΕΣΠΑ-funded programme. New contacts are added to the database as they become available. The office also offers a number of appropriate career planning services to students including seminars on entrepreneurship.

<i>Please decide in respect to the specific evaluation area (§5.1):</i>	Tick
<b>Worthy of merit</b>	√
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

## ***5.2 Operation of the Central Administration of the Institution – Conclusions and recommendations***

*Please complete the following sections regarding the operation of the Institution's central administration :*

- *Underline specific positive points:*

1. The administrative services team provides excellent support to the teaching and research programmes.
2. The SARF office (ΕΛΚΕ) assists faculty with budget preparation if requested. Once proposals are approved for funding, the SARF office will advance funds to the faculty member so that the research project can move forward according to the research timetable.
3. IT services effectively supports the campus by providing traditional IT services (internet, wireless, computer labs, etc.) but also developing unique tools and services to support research, teaching and administrative activities.

- *Underline specific negative points:*

None

- *Make your suggestions for further development of the positive points:*

1. Consider adding and/or redistributing staff support to Schools where appropriate.
2. Reinforce the links between the Office of Career Services and the Schools on issues related to employment opportunities for the graduates of the Institution.

- *Make your suggestions on needed steps for improvement:*

None

## 6. GENERAL RECOMMENDATIONS

*In connection with the*

- general operation of the Institution
- development of the Institution to this date and its present situation
- Institution's readiness and capability to change/improve
- Internal system of Quality Assurance of the Institution

*please complete the following sections:*

- *Underline specific positive points:*

1. Strong communication lines are in place at all levels within the Institution and the team spirit is evident in many parts of the Institution's life. Members of the academic community are working as a team towards excellence, their common goal.
2. Desire and will to improve.
3. Highly motivated, dynamic and high quality leadership, faculty, and staff.
4. Highly productive, high quality research output.
5. Excellent societal outreach.

- *Underline specific negative points:*

1. The mission statement and goals of the TUC as written in the Internal Evaluation Report are overly broad and difficult to implement.
2. The Internal Quality Assurance system has not been fully developed and only partially implemented.

- *Make your suggestions for further development of the positive points:*

1. Increase further synergies and partnership both outside and within the Institution

- *Make your suggestions on needed steps for improvement:*

1. Develop feasible strategic plan throughout TUC.
2. Fully develop and implement Internal Quality Assurance (QA) System

## 6.1 Final decision of the EEC

<i>Please decide in respect to the issues mentioned in the introduction of §6:</i>	Tick
<b>Worthy of merit</b>	√
<b>Positive evaluation</b>	
<b>Partially positive evaluation</b>	
<b>Negative evaluation</b>	

*Justify your rating (optional):*

It is underlined that the above evaluation refers only to the issues mentioned in ΑΔΠΠ's template at the introduction of this section (§6) in a way that reflects, more or less, TUC's internal doings. However, external constraints, mentioned throughout this report, paint an unpromising future for this Institution if not changed drastically and urgently. These constraints hinder considerably its smooth function and development. They include:

1. Inadequate National strategic plan for higher education within which the Institution is called to orientate itself.
2. Reduced autonomy of the Institution through a voluminous, complicated, difficult to follow and ever changing legal regulatory framework within which the Institution is called to operate.
3. External decisions about the number and the academic quality of student intake.
4. External decisions about the number of faculty and staff of the Institution.
5. Unilateral decisions by the Greek government about the Institution's funding without considering institutional needs, student numbers, or any other relevant factors.
6. Low compensation/salary of faculty compared to European and International standards that drive faculty abroad

Currently, the above constraints have brought the Institution to a critical state that cannot safeguard smooth operation, proper development and achievement of goals, especially in quality enhancement of undergraduate studies. In this context the very fact that TUC continues to function and deliver acceptable output is solely due to the strong interest and enthusiasm, high level of responsibility and volunteerism beyond normal expectations of the Institution leadership, faculty and staff. EEC highly commends this attitude of TUC.

EEC suggests that the State in collaboration with the Institution mentioned above address as first priority the external factors mentioned above.

**NB**

*Two members of the EEC give a lower evaluation (positive) due to the fact that QA of the Institution is actually not in place and also that the absence of a feasible strategic plan hampers the Institution's operation and its readiness to change.*



## The Members of the External Evaluation Committee

**Name and Surname**

**Signature**

1. Prof. Constantine Memos
2. Prof. Stella Batalama
3. Prof. Michel Dimou
4. Prof. George Vellidis
5. Dr Paraskevas Dalianis